The Infantry Rifle Platoon

Where Decisive Action Starts & Ends

United States Army Infantry School

Maneuver Center of Excellence

26 June 2015

The Infantry Rifle Platoon- *Where Decisive Action Starts & Ends*

Purpose

As our Infantry emerges from fourteen years of war and deals with reductions in force, leaders within the Infantry community must consider two primary matters. First, they must maintain the guiding principles that have made and will continue to make the Infantry Rifle Platoon the smallest effective element of combat power organic to the U.S. Army, capable of conducting maneuver with a dedicated, independent headquarters and able to constitute a reserve. Second, leaders are responsible for considering what will make the Infantry Rifle Platoon effective in the contemporary and future operating environment, one that is complex and presents near peer and hybrid-threat adversaries. To win against such adversaries, fighting in complex, urban, and subterranean environments, requires platoons to be smart, fast, lethal, and precise. Smart platoons are able to routinely generate situational understanding through changing conditions. Fast refers to a platoon's ability to physically and cognitively out maneuver adversaries. Lethality is the ability to apply deadly force against an adversary, when required. Precision is the accurate application of power to ensure delivery of the right effects in time, space, and purpose.

Everything developed for the future Infantry Rifle Platoon across the DOTMLPF-P must enable the platoon to be smart, fast, lethal, and precise.

The purpose of this paper is to affirm those fundamental aspects of the Infantry Rifle Platoon that are effective and to provide an assessment across the DOTMLPF-P domains as they apply to future capabilities. This paper builds upon the Squad Foundation of the Decisive Force initiatives. There are 100s of processes and thousands of people working on actions, initiatives, and programs that will impact Infantry Soldiers and Leaders. A single start point that unifies these efforts and makes sure we use valuable and limited resources efficiently and effectively is needed. This paper establishes a single, clear, concise and compelling description of what we expect Infantry platoons to do now and in the future. Ultimately, this paper guides our training, leader development, and modernization efforts relative to Infantry Rifle Platoons.

The Infantry Rifle Platoon is the smallest element of combat power organic to the United States Army that is capable of conducting maneuver…

Operational Context

The Infantry Rifle Platoon (Figure 1) operates as part of a Company Team in any Brigade Combat Team (BCT) to support expeditionary maneuver that enables joint combined arms operations to achieve

overmatch in close combat and destroy enemy forces, and/or wide area security that achieves sustainable outcomes within a commander's vision.[1]

The primary organizing principles and competencies of an Infantry Rifle Platoon stem from its unique mission, "**to close with the enemy by means of fire and maneuver in order to destroy or capture him, or to repel his assault with fire, close combat, and counterattack.**"[2] The primary organizing principle of an Infantry Rifle Platoon, regardless of the type of BCT formation, is its capability to conduct fire and movement organized along the principles of FIND, FIX, FINISH, and FOLLOW-THRU, and four elements that can conduct the specific tasks of Support by Fire (SBF), Breach, Assault, and Follow-Thru (Exploit success, Follow and Assume, or Reserve) (Figure 2). Every Infantry Rifle Platoon possesses a support element (Weapons Squad, Bradley Fighting Vehicles, or Stryker Infantry Carrier Vehicles) and Rifle Squads that can conduct all four tasks (support, breach, assault, reserve). Another key organizing principle of the Infantry Rifle Platoon is the three maneuver squads; the platoon is organized optimally to achieve a 3 to 1 ratio in the attack or the 1 to 3 ratio in the defense. This provides the Rifle Platoon with the organic capability to use multiple elements that provide a complex problem or multiple dilemmas for the enemy. A Rifle Platoon possesses task organized attachments, such as Forward Observers, which allow the platoon to plan, synchronize, and control all joint direct and indirect fires, enabling the platoon to conduct maneuver to close with and destroy the enemy. The Infantry Rifle Platoon also has a task organized medic, who provides point of injury care, stabilization, and triage functions which enhance the "golden hour" for casualty survivability. The Infantry Rifle Platoon HQ element maneuvers squads and fighting elements, synchronizes squad efforts, requests, integrates, and controls supporting assets (medics, Unmanned Aerial Systems (UAS), Counter-IED (C-IED), linguists, engineers, etc.), employs mission command systems, and employs mounted or dismounted heavy machine guns, rockets, and missiles. Additionally, the HQ element plans and integrates fires (direct, indirect, close combat attack (CCA), and close air support). "**Although the battlefield may be**

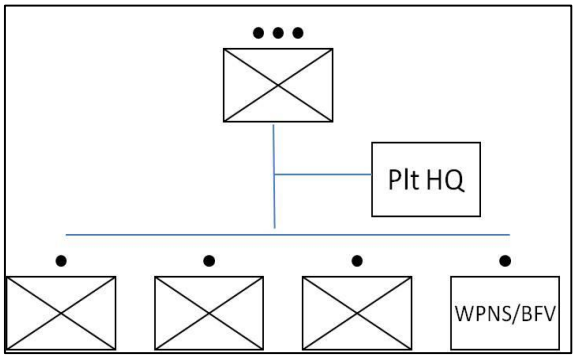

Figure 2

The primary organizing principle of an Infantry Rifle Platoon, regardless of the type of BCT formation, is its capability to conduct fire and movement to close with and destroy the enemy

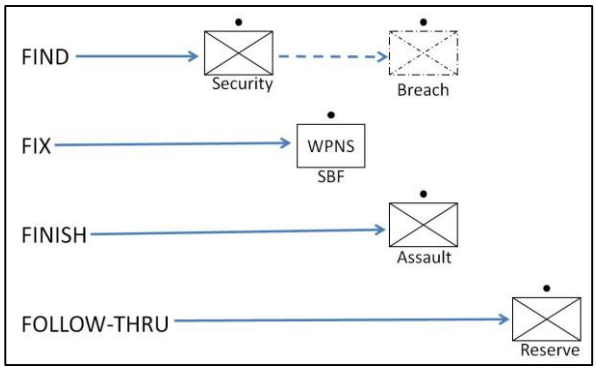

Figure 1

[1] U.S. Army. *The U.S. Army Operating Concept; Win in a Complex World 2020-2040, TRACOD Pamphlet 525-3-1*. Department of the Army. (Washington, D.C.: Government Printing office, 7 October 2014), 8

[2] U.S. Army. *The Infantry Rifle Platoon and Squad FM 3-21.8*. Department of the Army. (Washington, D.C.: Government Printing Office, 28 Mar 2007), 1-1

entered from a range of platforms, all types of Infantry must be able to fight and win dismounted. To perform this task each type possesses two distinguishing qualities. First, Infantry are able to move through almost any type of terrain under almost any condition. Second, Infantry can generate a high volume of lethal, well-aimed [direct] fire for a short time in any direction"[3] To enable these qualities, Infantry Rifle Platoons must have a headquarters element, currently a platoon leader, platoon sergeant, radio-telephone operator (RTO), along with enablers such as a forward observer and medic, to integrate warfighting functions. Infantry Rifle Platoons must have Rifle Squads to facilitate maneuver, currently three rifle squads of nine men. Also, they must have a base of fire element to allow for fire and movement, currently a weapons squad of nine men in the IBCT/SBCT and Stryker or Bradley Fighting Vehicles in the S/ABCT. As part of this base of fire element, platoons MUST be trained to effectively integrate company level weapons systems, such as mortars, into their operations.

Required Competencies

DRAFT ATP 3-21.8 lists the capabilities and limitations of today's Infantry Rifle Platoon. These capabilities are defined primarily by tactical tasks; and, when combined with analysis of emerging threats, they will drive future requirements. These capabilities are categorized as **enduring and projected**.

Enduring Capabilities:

- Conduct offensive, defensive, and stability tasks in all types of environments to include mountain, urban, and **subterranean** both day and night under any weather condition. (Must have the ability to support, breach, assault, and internally resource a reserve element if required).
- Seize, secure, occupy, and retain terrain. (Must have the ability to support, breach, assault, and internally resource a reserve element if required).
- Destroy, neutralize, suppress, interdict, disrupt, block, canalize, and fix enemy forces. (Must possess organic direct fire lethality and the ability to employ non-organic assets that achieve this effect).
- Breach enemy obstacles. (Must have organic support, breach, assault subordinate units capable of conducting breach using the Suppress, Obscure, Secure, Reduce and Assault (SOSR-A) methodology).
- Feint and demonstrate to deceive the enemy.
- Screen to provide early warning to the protected force or as part of a larger formation, guard to protect the main force. (Must possess organic mission command capability to adequately cover an area with mutual support).
- Reconnoiter, deny, bypass, clear, contain, and isolate. These tasks may be oriented on both terrain and enemy.
- Conduct small-unit operations, such as combat patrols and reconnaissance, security patrols, ambush or raid.

[3] (The Infantry Rifle Platoon and Squad, FM 3-21.8 2007), 1-1

- Participate in air assault operations. (Organic weapons and equipment must be transportable on existing and future aircraft in combat configuration in order to maximize combat power generation on the Landing Zone).
- Participate in airborne operations [either as airborne assault (airborne IBCTs only) or air land component]. (Organic weapons and equipment must be transportable on existing and future aircraft in combat configuration in order to maximize generation of combat power on the Drop Zone/ lodgment).
- Operate in conjunction with mounted forces / integrate with combat vehicles. (Interoperability of communications, weapons, and equipment with mounted elements and capability to operate mounted or dismounted).
- Operate in conjunction with special operations forces. (Interoperability of communications, weapons, and equipment including training and leader development with SOF).
- Participate in amphibious operations.

Infantry Rifle Platoon limitations are:

- Limited sustainment assets.
- Limited tactical wheeled vehicle mobility (IBCTs only).
- Vulnerable to enemy armor, artillery, and air assets when employed in open terrain.
- Vulnerable to enemy chemical, biological, radiological, and nuclear (CBRN) attacks with limited decontamination capability.[4]

Projected Capabilities: While all offensive, defensive, and stability missions are dependent on the factors of mission and operational variables, the following capabilities are required to execute the range of military operations (ROMO) envisioned in the Army Operating Concept (AOC). These capabilities are projected against near peer and hybrid threats between the present, near term (2020), and far term (2040) time frames based on current and future technology. These capabilities will require changes across DOTMLPF-P domains.

Offense

- ***Platoon Attack.*** Infantry Rifle Platoons must be capable of destroying a similar sized formation in the attack. The 3 to 1 ratio is preferred. However, providing overmatch through Combined Arms with direct fire, surface to surface fires, and close air support, the Infantry Rifle Platoon, using current and future technology, must win with a 1 to 1 ratio in the attack against an enemy in a fixed defense as well as during a meeting engagement in unrestricted or restricted terrain. In severely restricted terrain such as urban, subterranean, mountain, or jungle environments this ratio increases.
- ***Breach.*** An Infantry Rifle Platoon must be capable of conducting an explosive breach of an enemy minefield or IED engagement area over 100 meters independently or as part of a larger breach force. An Infantry Rifle Platoon also must be able to breach wire and tangle foot

[4] U.S. Army. *The Infantry Rifle Platoon and Squad of the infantry Brigade Combat Team.* ATP 3-21.8 Final Draft(Washington, D.C.: Government Printing Office, 31 October 2013) 1-8, 1-9.

protective obstacles by mechanical means. An Infantry Rifle Platoon must be able to conduct urban breaching operations using ballistic, explosive, and mechanical breaches to facilitate rapid movement to maintain tempo.

- ***Approach March.*** The Infantry Rifle Platoon must be capable of conducting a dismounted approach march of 20km in five hours, carrying approximately 4,000lbs. The individual Infantryman must perform a dismounted approach march with an approach march load of no more than 100lbs[5]. An Infantry Rifle Platoon, conducting a dismounted approach march utilizing the traveling movement technique across open terrain, should be able to travel 20km in a 5 hour period (4 KPH).[6] The approach march load weights include all clothing and equipment that are worn and carried. An Infantry Rifle Platoon must also be capable of moving tactically for 8 hours in a 24 hour period with distances and load based on METT-TC.
- ***Squad Overmatch.*** The Infantry Rifle squad must be able to achieve overmatch during any contact, kill stationary and moving threats out to 600m, and effectively suppress threats out to 1200m. Additionally, the Squad must be able to overtly or covertly designate targets out to 1200m for immediate or follow-on action from adjacent forces, systems, or fires. These capabilities must be organic to the squad and not require employment of platoon and company assets such as mortars, snipers, and machine guns.
- ***Resupply.*** An Infantry Rifle Platoon must be able to operate dismounted for 72 hours without resupply. One way to decrease Soldier load is through properly planning and managing the resupply rate. Additionally, investments in tactical logistics training and capabilities can ensure timely and effective resupply.
- ***Point of Injury Medical Treatment.*** Platoon organic medical support, e.g. Platoon medic, Combat Lifesaver, and first responder trained NCO's must maintain the knowledge, skills, abilities, and equipment to provide point of injury care, stabilization, and triage functions for up to one hour (e.g. the "golden hour").

Defense

- ***Frontages.*** METT-TC dependent, a dismounted (IBCT) Infantry Rifle Platoon must be capable of defending a linear front of 1000 meters. This platoon frontage accounts for the maximum effective range of current direct fire weapons systems organic to the Platoon and line of sight variables. As weapons, ammunition, and optics technology improve, these frontages may increase.

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[5] **Fighting load**: consists of essential items Soldiers need to maneuver on, close with and destroy enemy forces in direct fire contact. Fighting loads should be kept at a minimum. The load is the sum of everything worn or carried by the soldier including uniform, boots, socks, PPE, weapon, ammo, water source, etc. **Approach March Load**: the fighting load plus additional equipment. This may include an assault pack or rucksack and all other items not needed in the fighting load. These other items are determined according to METT-TC for approach marches where enemy contact is intended. These other items are intended to be dropped in an assault position, objective rally point (ORP), or immediately upon contact with the enemy. Approach March Load should not exceed 100 lbs. **Emergency Approach March Load**: Certain missions could require Soldiers to carry heavier loads through terrain impassable by vehicles or where ground and air transportation resources are unavailable. Emergency approach march loads should only be utilized when absolutely necessary to accomplish a specific mission. Excessive weights associated with these loads significantly impact the unit's ability to move to the objective area without physically exhausting Soldiers.

[6] U.S. Army. *Foot Marches.* FM 21-18 (Washington, DC: Headquarters Department of the Army, 1 June 1990) 3-9.

- ***Anti-Armor.*** An Infantry Rifle Platoon must be capable of destroying an enemy tank company (10-14 tanks) from a prepared battle position through combined arms operations with organic anti-tank missile systems, surface to surface fires, and air to surface fires (e.g. CCA and CAS) employed in an engagement area that allows the Platoon to observe out to the maximum effective range of its direct fire close combat missile systems.
- ***Avenues of Approach.*** An Infantry Rifle Platoon must be capable of blocking two avenues of approach from mutually supporting blocking positions against mounted and dismounted threats, using organic direct fire weapons and supporting fires. The current organization of the Infantry Rifle Platoon allows the platoon leader to divide his platoon into two equal sections and evenly distribute his crew served weapons and close combat missile systems to effectively block two avenues of approach.

Stability

- ***Population Ratio.*** An Infantry Rifle Platoon must be capable of conducting stability operations in an area with a population density of approximately 1500-2000 people. "In counterinsurgency operations, planners can develop force requirements by gauging troop density—the ratio of security forces (including host-nation military and police forces as well as foreign counterinsurgents) to inhabitants. Most density recommendations fall within a range of 20 to 25 counterinsurgents for every 1,000 residents in an area of operations. A ratio of twenty counterinsurgents per 1,000 residents is often considered the minimum troop density required for effective counterinsurgency operations; however, as with any fixed ratio, such calculations strongly depend on the situation."[7]

Infantry Rifle Platoon DOTMLPF-P Overview

Doctrine: The primary doctrine concerning the Infantry Rifle Platoon is FM 3-21.8 dated March 2007. FM 3-21.8 lacks battle drills. The new ATP 3-21.8, which is currently in draft form, will cover all Infantry Rifle Platoons in all BCTs and includes battle drills. The PL, PSG, and Squad leader must be proficient at troop leading procedures, technically competent in all Infantry Rifle Platoon equipment and weapons, and tactically competent to lead Soldiers in combat operations. New developments and studies are informing the re-writing of ATP 3-21.18 Foot Marches to better align our doctrine with Soldiers load. The MCoE is also developing an Integrated Weapons Training Strategy and a new marksmanship manual to address current training and resource gaps in our formations.

Organization: The Organization of the Infantry Platoon's Squads was reduced from 11 to 9 men during the Army of Excellence initiative ('83-84'). The Brigade Combat Team Operational and Organizational Concept: 1999-2000 standardized Infantry Rifle Platoons across Airborne, Air Assault, Light Infantry, and Stryker with the standardization of a weapons squad. The current organization of 3 maneuver squads, 1 Weapons Squad, and a HQ element, totaling 39 men, has not changed since then, while Soldier/squad equipment and tasks are increasing and becoming more complicated (e.g. the mission command network, vehicle drivers, arms room weapons concept, robotics, squad designated marksman, UAS,

[7] U.S. Army, *Commander and Staff Organization and Operations* FM 6-0(Headquarters Department of the Army Washington, DC, 5 May 2014) 9-20

etc.). It will be difficult to execute what is envisioned in the AOC, given the existing organization without increasing riflemen or external enablers to cover additional tasks. The latest BCT design reductions to ABCTs will result in Combined Arms Battalions with only 3 Rifle Platoons. This will force task organization with I/SBCT down to Company Team level as a mitigating solution. The MCoE continues to experiment to validate current organizations through the Maneuver Battle Lab and the Experimental Company.

"*All infantry squads share common tasks and therefore a common basic organization, common doctrine, and a common leadership ratio. All Infantry platoons should likewise have three squads plus an antitank capability and the ability to lay down a base of fire." MG Carl F. Ernst, 16th Chief of Infantry (1996-1999)*[8]

Training: Currently, Home Station Training opportunities vary by installation. In the past 14 years IMCOM greatly improved installation range support operations through standardization. Home station training needs to concentrate on squad and platoon proficiency in a live environment focusing on physical fitness, marksmanship, live fire training, communications training, and first aid, as well as continual leader development. In a constrained fiscal environment, emphasis must be placed on readiness over materiel. Live, Virtual, Constructive, & Gaming initiatives (LVCG) are improving. The Close Combat Tactical Trainer (CCTT) is proven; the Engagement Skills Trainer (EST) still poses challenges with weapon types and optics; and the Dismounted Soldier Training System (DSTS) lacks the ability to walk and integration with other vehicle simulations; there are limited capabilities for Strykers and dismounted collective training. MCoE training improvements include a new marksmanship program of instruction at Infantry One Station Unit Training (OSUT), the Marksmanship Master Training Course, and initiatives to introduce emerging technologies into functional training such as the Soldier Borne Sensor and Nano-UAS in Raven training

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Materiel: The MCoE in conjunction with Research, Development, and Engineering Command (RDECOM), the Army Research Lab, Assistant Secretary of the Army for Acquisition, Logistics and Technology ASA (ALT), Army Capabilities Integration Center (ARCIC) and other Centers of Excellence are working together to provide Soldiers the required capabilities to ensure they maintain dominance in land warfare. The required capabilities are informed by the Capability Needs Analysis (CNA) process, Soldier surveys, unit post-combat visits, and observations at the Joint Readiness Training Center. Over the past decade of war, the Army has made significant improvements in firepower, protection, and situational understanding. The increases in Soldier and vehicle protection have led to an overall decrease in tactical mobility and agility, thus reducing platoons' overall effectiveness fighting in complex terrain. The objective for modernization efforts is to provide Soldiers with operationally relevant, state-of-the-art systems with fully integrated capabilities previously vetted through the DOTMLPF-P domains.

MCoE priorities for equipping platoons and squads are:

[8] MG Earnst, Carl F. "Commandant's Notes." *Infantry* 87, no. 1 (1997): 2.

- Improve leader development, training, and doctrine.
- Reduce Soldier load.
- Improve cognitive and physical performance.
- Dismounted Mission command - increase bandwidth to Soldiers with Leader reach back capability two levels up.
- Improve lethality through improved range, probability of hit (P(h)) and reduced engagement times with small arms rapid target acquisition and fire control technologies.
- Improve counter defilade target engagement times, accuracy, and increased small arms engagement ranges and lethality.
- Reduce power consumption and increase small unit power generation.
- Improve survivability through protection and blast mitigation.
- Soldier-borne Sensor (SBS) and Short Range Micro (SRM) Unmanned Aerial Systems for increased understanding and targeting with Maneuver and Fires Integration App (MAFIA).
- Improve simulations.
- Improve Soldier System Integration through baseline Configuration Management as an approach to reduce Soldier load, and system power consumption.

The MCoE will continue to develop Soldier capabilities to increase Infantry Rifle Platoon and squad contributions to the Maneuver Force. Several notable material improvements are actively under development that will further mitigate Soldier risk, to include: the Nett Warrior (NW), Small Unit Power (SUP), Precision Sniper Rifle (PSR), Counter Defilade Target Engagement (CDTE), Shoulder Launched Munitions (SLM), Family of Weapons Sights (FWS), and Small Unmanned Aerial Systems (SUAS) which are currently progressing through the formal acquisition process. The Army Network maturation continues. An effort is underway to integrate 4G/LTE capability into the WIN-T network to increase bandwidth to dismounted Soldiers. The 4G/LTE capability will enable streaming of Full Motion Video and rapid transmission of data, something the current network is unable to do. In coordination with XVIII Airborne Corps and the 82nd Airborne Division, the Army is developing Enhanced Tactical Mobility (ETM) solutions to increase mobility for airborne and air assault Infantry Platoons during forced and early entry operations.

As Soldier and squad equipment continues to improve, size, weight, and power (SWaP) demands are added. Soldier load is increasing, not decreasing. Some promising advancements in lightening weapons, ammunition, and body armor are projected (see Annex A). While we empower Soldiers with great capability and equipment, we also encumber them through additional complexity and new requirements for integration. This increases the potential for cognitive and physical overload. The Army must resist the urge to burden the Infantry Rifle Platoon with additional “things” that continue to increase demand in size, weight and power (SWaP), without considering what equipment must be removed.

Leader Development & Education: Leader Development is the Chief of Staff of the Army’s number one priority. The outcome of the institutional Officer Education System (OES) and Non Commissioned Officer Education System (NCOES) must be smart, fast, lethal, and precise leaders with optimized human

performance across the cognitive, social, and physical domains. The institutionally-trained leader should know how to **lead, train, fight (shoot, move, communicate, survive), sustain,** and **be agile, adaptive and innovative**. ALC, SLC, & IBOLC outcomes are:

- Demonstrate situational understanding and agility in adapting to change within a complex environment.
- Be physically and mentally strong.
- Conduct Troop Leading Procedures at the appropriate level with an emphasis on planning and rehearsals.
- Know how to plan, resource, execute, and assess individual and collective training for their formation in accordance with the 8 step training model.
- Shoot: capable of engaging targets and controlling organic weapons systems to optimize effects, capable of controlling indirect fires at their formation level, capable of controlling direct and indirect fires with air/ground integration during Maneuver.
- Move: capable of employing section/platoon level movement formations and techniques, able to conduct section/platoon level maneuver independently or as part of a larger formation.
- Communicate: capable of communicating in accordance with Army doctrine orally, written, and graphically, capable of providing performance feedback to individuals; understand evaluations and developmental counseling; mentor subordinates.
- Understand principles of patrolling, fundamentals of reconnaissance and security operations.
- Understand priorities of work, patrol base activities and security operations.
- Understand how to treat and evacuate casualties.
- Understand command supply discipline.
- Understand how to maintain equipment.
- Able to synchronize assets at the right time and place in accordance with commander's intent.
- Look for creative solutions to solve problems.
- Understand Army Ready and Resilient Programs to best care for and serve Soldiers and Families.
- Embody the Army Profession and live the Army Values.

The NCO Education System (NCOES) has improved, but is not producing subject matter experts in MOS specific tasks in line with their current and next skill level. The trend toward online NCOES training versus brick and mortar school house training must be resisted. Online NCOES training reduces the student's ability to receive instruction from competent leaders in a hands-on fashion. All Infantry Lieutenants must continue to have the opportunity to attend Ranger Training and the number of Ranger qualified NCOs in the Infantry must increase. Currently, only 24% of Enlisted Ranger qualified authorized positions in every BCT (ABCT, IBCT, and SBCT) are manned by Ranger qualified Soldiers.[9] Where applicable, attendance at appropriate functional training (e.g. Infantry Mortar Leader Course,

[9] Office, Chief of Infantry (OCOI) 11B Ranger (G/V/U) Distribution March, 2015

Master Gunner Course, Jumpmaster Course, Pathfinder Course, Stryker/Bradley Leader Course) must be prioritized both in units and at institutional training.

Infantry NCOs require career management to capitalize on technical expertise obtained through attendance of NCOES, functional course, and operations and training with formation types.

Personnel: Infantry NCOs require career management to capitalize on technical expertise obtained through attendance of NCOES, functional courses, and operations and training with formation types. Infantry Commanders at all levels require Soldiers and leaders with the technical and tactical experience to shoot, move, communicate and survive. There must be a re-examination of both the cognitive and physical requirements of the Infantry military occupational specialty (MOS) due to the increased integration of technology and equipment into the Infantry Rifle Platoon which increases both the cognitive and physical load on the individual Infantryman. Training and leader development must improve technical knowledge of the BFV/Stryker and shoulder launched munitions.

Facilities: Most training facilities Army wide are satisfactory but improvements in munitions effects and the addition of Soldier sensors reveal several limitations. Existing ranges must be improved to accommodate these more advanced munitions. Airspace in training areas needs to be better coordinated to allow Infantry Rifle Platoons to employ the full suite of existing and future Soldier Sensors. The Army needs to increase the number and scope of Military Operations in Urban Terrain (MOUT) sites, and incorporate subterranean areas into existing facilities, and establish standalone subterranean training facilities in order to better align with the AOC. Leaders must be able to employ all their sensors and weapon systems on live fire maneuver ranges in order to truly achieve combined live fire exercises and increase their competencies in maneuver and combined arms operations. Live fire maneuver ranges need to provide multiple maneuver options to force leaders to make decisions as opposed to following pre-determined attack positions, support by fire positions, and assault positions due to limits from surface danger zones. The Army must improve targetry to allow for better target feedback, laterally moving targets, life-like targets, simulated return fire signatures, and better replicating a thinking enemy. This improved targetry must also replicate human thermal signatures to enable emerging Soldier sensors in that waveform. Many live fire maneuver ranges have restrictions that limit the full implementation of maneuver and combined arms operations. The Army is making adjustments over time to accommodate Live, Virtual, and Constructive training environments.

Policy: The Infantry Rifle Platoon operates within the Army and Theater specific policies. The Infantry Rifle Platoon requires policies that enable small unit leaders to make appropriate decisions on tailoring Soldiers load to enhance mission accomplishment given the level of risk.

Far-term Capabilities

ATP 3-21.8 lists the capabilities and limitations of today's Infantry Rifle Platoon. Using the AOC construct of emerging threats, increasing urbanization (Mega-cities) and emerging technologies may require increased capabilities in the following areas to win in this complex future.

- Human dimension technology, improving physical and cognitive strengths of Soldiers and leaders. Physical and cognitive simulations for Soldiers and leaders. (Training)
- Improve Soldier and leader ability to develop greater understanding through mission command systems. (Leader Development & Education)
- Improvements in dismounted Infantry access to the mission command network inside and outside of buildings or subterranean areas. (Materiel)
- Increased capability to visually and geographically orient follow-on elements to the enemy and key terrain (Augmented Reality vision linked to the net? /Heads-up virtual displays?) (Figure 3) (Training, Leader Development & Education)

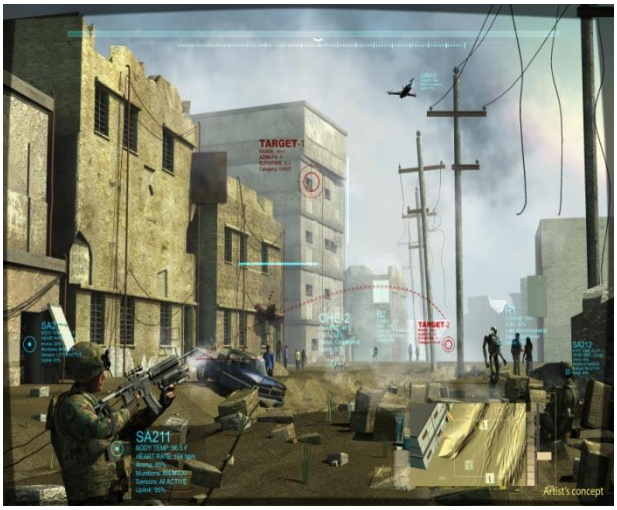

Figure 3

Example Augmented Reality / Heads up Display

- Doctrine which describes both horizontal, vertical, and subterranean maneuver (in Mega-City buildings) (Doctrine)
- Reduced and rationalized Soldiers load (are the number and distribution of our belt-fed automatic weapons correct for the environment and threat we expect to fight in? USMC M27 Infantry Automatic Rifle versus the SAW? Do we need a different distribution of HE/Anti-structure weapons /munitions versus Anti-tank? (Leader Development)
- Mobile Protected Firepower, immediate support to dismounted infantry (Does the replacement for the M1A2 Abrams need to be optimized for Anti-tank combat with secondary capability to provide support to infantry or vice versa? More like Israeli Merkava with capability to carry organic dismounted infantry at expense of main gun ammo?) (Materiel)
- Improved tactical wheeled mobility for IBCTs. (Ground Mobility Vehicle?) (Material)
- Improved precision fires (MAFIA, Precision Guided Mortar Munitions) (Material)
- Improved Night Vision / Night Optics (Family of Thermal Weapons Sights / hybrid UV and thermal night vision devices/ sights). (Material)
- Improved sensors / robotics (Soldier Sensor Systems / semi-autonomous and autonomous systems that don't require a soldier to "pilot" them but still provide relevant data and understanding). (Material)
- Improved CBRN Personal Protective Equipment (PPE) that provides protection while not limiting mobility and situational awareness. (Material)
- Superior air defense and counter-unmanned aerial system (C-UAS) systems and capabilities at echelons above the platoon that allows the platoon to operate unhindered from these threats. (Materiel, Organization, Doctrine)

The Future

The future Infantry Rifle Platoon must be designed against what we believe our future adversaries will look like and probable operational environments versus fiscal constraints or parochial beliefs. The Army Operating Concept states the future force will most likely face a hybrid threat. TC 7-100 defines the hybrid threat as "the diverse and dynamic combination of regular forces, irregular forces, and/or criminal elements all unified to achieve mutually benefitting effects."[10] Hybrid threats will use an ever-changing variety of conventional and unconventional organizations, equipment, and tactics to create multiple dilemmas for friendly forces. Additionally, according to the AOC, we anticipate an increase in operations in mega-cities and the urban environment. The United Nations Urbanization Project 2014 estimated that 54 percent of the world's population lives in urban areas and is expected to increase to 66 percent by 2050.[11] The future battlefield will not be a linear environment with well-defined enemy actors where our current overmatches in surface to surface fires, air to surface fires, UAS, air dominance, and long range precision direct fires will easily destroy the enemy's warfighting capacity and deliver a quick decisive win. **Instead, the future battlefield will include complex urban, population centric environments where Infantry Rifle Platoons will be the decisive force engaging enemy forces at close range for dominance of terrain and ideas.**

Key points to consider as we look at the future infantry rifle platoon:

- The need for an Infantry Rifle Platoon to seize or retain terrain or destroy an enemy force will increase, regardless of an increase in Information Collection technologies, soldier sensors, and over the horizon precision targeting capabilities in the near future, due to the proliferation of asymmetric threats and the increase of irregular forces to counter these capabilities.
- The Infantry Rifle Platoon needs to see the enemy first, act first, survive enemy initiated contact and decisively gain and maintain the initiative by achieving fires overmatch and maneuvering to rapidly destroy the enemy. Firefight ending capability. The Infantry Rifle Platoon must be able to achieve this against a hybrid threat with asymmetric capabilities that will adapt to our advantages.
- Manned-Unmanned Teaming (MUM-T)[12], we must not overburden the Infantry Rifle Platoon with operating these unmanned systems. Each additional unmanned system added to a platoon takes at least one

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[10] U.S. Army. *Hybrid Threat, TC 7-100*. Department of the Army. (Washington, D.C.: Government Printing office, 26 November 2010), v

[11] UN Urbanization Project Report 10 JUL 2014, New York http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html

[12] MUM-T is the concept of teaming the Soldier/leader with multiple unmanned sensor and effects resources such as an unmanned combat vehicle (UCV) and or unmanned aerial sensor (UAS) to either remotely deliver effects or concurrently deliver effects along with the Solider.

rifleman off the line to operate or secure it, reducing the capability of the platoon. The Infantry Rifle Platoon and below need to operate as consumers of these unmanned capabilities, but not be burdened with operating, maintaining, and sustaining these unmanned systems. MUM-T may require the addition of specialty platoons or sections to operate, maintain, and sustain these systems as part of a battalion or company's Modification Table of Organization and Equipment (MTOE) to support of the Infantry Platoon.

The Infantry Rifle Platoon and below need to operate as consumers of unmanned capabilities and not burdened with operating, maintaining, and sustaining them.

- The Network, we must be cautious about thinking that possessing information overmatch will negate the effect of *Mass* as a basic principle of war and *Concentration* as a characteristic of the offense. The hybrid threat will continue to innovate along asymmetric means in order to counter the increase of our sensor technologies.
- We do not foresee the mission command network replacing the psychological necessity of small unit cohesiveness and the necessary capability of massing against the enemy at the decisive point.

We do not foresee the mission command network replacing the psychological necessity of small unit cohesiveness and the necessary capability of massing against the enemy at the decisive point.

Complexity is the overarching theme as we look at the future. The ability to deal with the complexities we foresee on the future battlefield will fall on all individual Infantrymen within the Infantry Rifle Platoon and more profoundly upon its leaders. We must invest in developing future Infantrymen and leaders to operate in this complex environment through our institutional training and leader development programs of instructions. Future Infantry Rifle Platoon DOTMLPF-P solutions must reduce the task load on individuals and the organization. The current trend of materiel solutions provided to the Infantry Rifle Platoon comes with a cost in weight, power, training, maintenance, sustainment, operator(s), and integration.

Conclusion

Today's Infantry Rifle Platoons and Squads are very capable combat formations, but they can develop into smarter, faster, more lethal, and precise formations with the right investments across DOTMLPF-P. These investments are absolutely critical to mission success as manning within BCTs decreases and as BCT force structure is lost in the coming years. Infantry Platoons and Squads retained in the force must be the most capable on any battlefield. Based upon the Army's modernization efforts and emerging science and technology developments, future Infantry Platoons and Squads will integrate new capabilities and will have

A properly trained and led Infantry Rifle Platoon should be able to trade weapons and equipment with their adversary and still defeat them on the battlefield through superior skill, will, and teamwork

additional assets to control, shape, and process during maneuver. This may lead to required changes to tactics, techniques, and procedures due to emerging capabilities and the requirement to manage additional attachments or enablers. Training and Leader Development remain critical to the success of the future Infantry Rifle Platoon. A properly trained and led Infantry Rifle Platoon should be able to trade weapons and equipment with their adversary and still defeat them on the battlefield through superior skill, will, and teamwork.

Finally, there is no substitute for tough, realistic, small unit live fire collective training to build lethal, cohesive, and resilient formations that can effectively conduct close combat against adaptive, committed, and lethal enemies and adversaries and win any fight.

The Infantry Rifle Platoon is the smallest element of combat power organic to the United States Army that is capable of conducting maneuver[13] with a dedicated, independent, headquarters and capable of constituting a reserve. In order to maintain this capability, the platoon must maintain its basic doctrinal requirements to conduct fire and movement in close combat as well as the capability to integrate organic and joint fires. Additionally, the Infantry Rifle Platoon must retain the flexibility to employ subordinate support, breaching, assault and reserve elements in order to retain the capability to find, fix, finish, and follow through. It must retain the manning to sustain casualties and still continue the mission. Leader development must continue to train agile, adaptive, and innovative leaders who are physically and mentally tough. We must retain the unit's collective lethality through synchronized and complimentary individual and crew served weapons. We must be careful as we approach future developments to avoid over-reliance on systems versus Soldiers. Finally, there is no substitute for tough, realistic, small unit live fire collective training to build lethal, cohesive, and resilient formations that can effectively conduct close combat against adaptive, committed, and lethal enemies and adversaries and win any fight.

[13] Maneuver - Employment of forces in the operational area through movement in combination with fires to achieve a position of advantage in respect to the enemy. (JP 3-0)

Annex A, Infantry Rifle Platoon Materiel Modernization.

Introduction. To maintain the enduring and achieve the projected capabilities articulated in this paper, the MCoE is pursuing the capabilities shown in this annex. These capabilities will enable the Infantry Rifle Platoon to develop and sustain a high degree of situational understanding while operating in complex environments against determined, adaptive enemy organizations; conduct effective air-ground reconnaissance to rapidly develop the situation in close contact with the enemy and civilian populations; conduct maneuver to seize and retain the initiative and defeat capable, determined enemy in all types of terrain including dense urban areas; retain freedom of movement and action at the end of extended and contested lines of operation during high tempo, decentralized operations.

Summary of Capabilities. In the near to mid-term (present to 2025), the Infantry Rifle Platoon will be fielded with, and trained on, the most advanced equipment that will provide the following capabilities.

- operate in a larger or more dispersed battlespace, enabled through the network and enhanced lethality.
- gain freedom of movement and better shape engagements, through enhanced situational awareness and lethality, and night vision technologies.
- lighter weapons/ammunition and advanced optics for limited visibility to provide a weapons mix for extended range engagements, greater lethality, and lighter Soldier loads.
- beyond line of sight situational awareness and precision fires.
- robotic technologies to enable platoon reconnaissance and perform unique logistical activities
- improved leader training systems that permit multi-echelon training, virtual trainers that contain a variety of mission types, and combat scenarios that present a graduating degree of difficulty.

Technology Descriptions. Specific descriptions of technologies are discussed in the proceeding paragraphs.

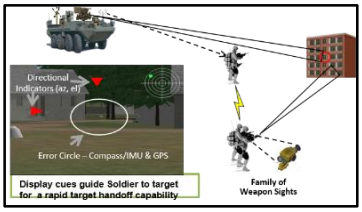
Nett Warrior. Nett Warrior is an integrated dismounted leader situational awareness (SA) system for decisive action. Nett Warrior provides overmatch operational capabilities to all dismounted ground combat leaders and provides SA allowing for faster and more accurate decisions in the tactical fight. With advanced navigation, SA, and information sharing capabilities, leaders are able to avoid fratricide and are more effective and more lethal in the execution of their missions.[14]

Maneuver Aviation Fires Integrated Application (MAFIA). MAFIA gives leaders the ability to quickly generate CAT 1 coordinates for accurate, timely, and predictable fires. It enables the Fire Supporters to dynamically clear and maintain the air picture for the area of operations. MAFIA provides Full Motion Video from Soldier Borne Sensors down to Squad level, enabling over the horizon fires. MAFIA's digital interoperability supports Cursor On Target (COT) commands from

[14] Nett Warrior. AEWE Final Reports Spiral F, 25 March 2010; Spiral G, 1 March 2011; Spiral H, 12 August 2013; Spiral I, 18 August 2014, Spiral J Initial Insights, 2 March 2015; Small Unit Leader Situational Awareness Tool (SULSAT) Final Report, May 2014, MBL Report # 0322; Manned Unmanned Teaming Ground (MUM-T (G)), November 2014, MBL Report # 0335.

Soldier Borne Sensor operators, a significant improvement over current voice only operations. [15]

Target Hand Off (THO). Platoons, networked and equipped with THO technology, will rapidly, accurately, and covertly acquire and hand-off targets between friendly elements and platforms enabling them to gain a position of advantage over the threat and improve lethality and survivability in both day/night operations. THO gives platoons a day and night stealth capability to hand-off targets between squads and between squads and more importantly to supporting vehicle platforms.[16]



Soldier Borne Sensors (SBS). Platoons equipped with organic micro Soldier-borne sensors and Squads equipped with nano Soldier-borne sensors extend tactical reach, improve lethality via precision fires, improve the common operating picture, and reduce reliance and competition for Unmanned Aerial Systems sensors at higher echelons. Supporting platoon maneuver with organic Soldier-borne sensor capabilities makes the platoon's movements more deliberate, and enhances the survivability of the unit through earlier detection of the enemy and potential danger zones. The technology provides the platoon with an easy to employ capability to meet information demands, target beyond line of sight, conduct route reconnaissance, and obtain real-time intelligence of objective areas.[17]

Protection. The Soldier Protection System (SPS) is a system of systems consisting of Integrated Head Protection System (IHPS), Torso and Extremity Protection (TEP), Vital Torso Protection (VTP) and Integrated Soldier Sensor System (ISSS). The Soldier protection includes active hear-thru hearing protection provided by Tactical Communications and Protective System (TCAPS), which provides hearing protection to both steady state and impulse noise while simultaneously providing audio amplification required increase Situational Awareness (SA). The SPS is a lightweight modular, scalable, tailorable suite of protective equipment that provides the appropriate level of protection consistent with a unit's mission. The modular protection will enable Soldiers the ability to rapidly transition between levels of protection with minimum impact to units.

[15] MAFIA. Maneuver and Fires Integrated Exercise (MFIX) 2014; AEWE Final Reports, Spirals I, 18 August 2014; Spiral J Initial Insights, 2 March 2015.

[16] Target Handoff (THO). Target Handoff Limited Objective Experiment, January 2014, MBL Experiment # 0318.

[17] Soldier Borne Sensors (SBS). AEWE Final Reports Spiral G, 1 March 2011; Spiral H, 12 August 2013; Spiral J Initial Insights, 2 March 2015; Soldier Borne Sensors (SBS). AEWE Spirals J Initial Insights, 2 March 2015.

Lethality. Critical solutions are lightening the Soldier's load, integrating multiple systems into a single, lightweight system, improving reconnaissance, and enhancing weapons/lethality.

Lightweight Small Arms Technologies. Lightweight Small Arms Technologies offer a revolutionary change to weapons and ammunition. The Case-less Telescoping-Light machine Gun (CT-LMG) is a system developed under the Lightweight Small Arms Technology (LSAT) managed by the Joint Service Small Arms Program (JSSAP). This 5.56 mm prototype lightweight weapon significantly enhances small unit maneuver, and increases small unit effectiveness and lethality, while significantly reducing Soldier load. A similar effort in 7.62 mm is scheduled for evaluation in FY 16. Success would have implications for carbines, and all machine gun variants. This significant weight reduction will provide flexibility for additional weapons mix within the platoon and possibly changing weapons squad and fire team functions. For example, will previous crew-served weapons become individual weapons? Will heavy machine gun at medium machine gun weight be placed in weapons squad?[18]

Counter Defilade Target Engagement System. Counter Defilade Target Engagement System allows Soldiers to engage defilade targets, those behind a barrier, protected from oncoming weapons fire. The system provides an advantage over traditional weapons because it measures the distance to the enemy's protective barrier, and can then program the round to detonate a user-adjustable distance past that. This allows Soldiers to put an air-bursting round directly above the enemy's head, inside their protected area, even if they are behind a wall or inside a building.

Night Vision. The AN/PSQ-20 Enhanced Night Vision Goggle (ENVG) is a recently-fielded, high performance night vision goggle. The inclusion of a thermal sensor in addition to the standard night vision image intensification tube, enables the Soldier to maneuver and operate covertly in all light conditions (including under the cover of darkness) and in many environmental conditions (e.g. dust, fog, heavy foliage). This thermal sensor additionally provides Soldiers the ability to engage subterranean targets. This system is providing a marked advantage over threat forces.[19]

The Family of Weapon Sights (FWS) program, with individual, crew served, and sniper variants, will provide improved thermal target detection and recognition beyond the maximum effective range of small arms weapons (to maintain overmatch), as well as improved target engagements. Further, the individual variant will wirelessly transmit the weapon sight's image and zeroed reticle to the ENVG display (current; or future Helmet Mounted Display(HMD)) to provide the Soldier with a rapid, passive engagement

[18] Lightweight Small Arms Technologies. Dismounted Non-Network Experiment, September 2013, MBL Experiment # 312; Lightweight Small Arms Technologies. Cased Telescoped Light Machine Gun (CT- LMG) September 2011, MBL Experiment #274; Lightweight Small Arms Technologies. AEWE Spiral J 2015.

[19] AN/PSQ-20A Enhanced Night Vision Goggle (ENVG). AEWE Spirals G, H, J.

capability (passive, because it does not require the use of an aiming laser or other active illumination). The crew served variant will wirelessly transmit the weapon sight's image and zeroed reticle to a HMD so that the Soldier will not have to obtain eye-relief directly behind the sight when engaging targets with crew served weapons.

Sustainment. Solutions must enable power in austere environments, provide multiple forms of power, enable resupply, and keep the Infantry Rifle Platoon light, so that it can gain and maintain contact with the enemy.

Robotics. Although the echelon (platoon, company, etc.) for robotics, manned-unmanned teaming, is still undetermined, robotics have the potential to significantly reduce current logistical burdens. They can provide the companies and platoons with the ability to deliver sustainment support directly to units in forward positions. Leveraging this robotic capability reduces tactical and operational risk, provides an uninterrupted flow of sustainment, and enhances freedom of action for maneuver forces.[20]

Integrated Power. Advances in reliable wiring, routing material, the performance of conformal batteries, and smart boxes portends that integrated power for the Soldier and weapon is reasonable. Electronics and power sources on Soldier accessories are generally the largest components. Integrated power will reduce load, simplify logistics, and provide the ability to prioritize the power to accessories.

[20] Robotics. Extending the Reach of the Warfighter Through Robotics (ERWR) Demonstration, August 2014, MBL Final Report # 0328; Robotics. AEWE Spiral G Final Report, 1 March 2011; AEWE Spiral I Final Report, 18 August 2014; Robotics. MUM-T (G) LOE, November 2014, MBL Final Report #0335.